Seismic Data Acquisition and Interpretation to Promote Oil Exploration and Leasing | **FY2003 Request: $155,000** | **Reference No: 33977**

AP/AL: Appropriation
Project Type: Planning
Category: Development
Location: Statewide
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Election District: Statewide
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Estimated Project Dates: 07/01/2002 - 06/30/2003

Brief Summary and Statement of Need:
To accomplish its mission of responsibly managing and encouraging development of the state's petroleum resources, the division must have funding to acquire, analyze, and preserve the geophysical data necessary to do so. Proper evaluation of the petroleum potential of state lands and responsible oversight of development of the state's petroleum assets requires that the division purchase geophysical data (primarily seismic data) from adjacent private and federal lands (NPR-A for example). The division also must maintain technical compatibility with the industry that it regulates. Older geophysical data must be converted to digital format for modern interpretive computer applications and to preserve the data.

Funding:

	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	Total
Gen Fund	$155,000	$155,000	$155,000	$155,000	$155,000		$775,000
Total:	$155,000	$155,000	$155,000	$155,000	$155,000	$0	$775,000

☐ State Match Required ☐ One-Time Project ☐ Phased Project ☒ On-Going Project
0% = Minimum State Match % Required ☐ Amendment ☐ Mental Health Bill

Operating & Maintenance Costs:

	Amount	Staff
Total Operating Impact:	0	0
One-Time Startup Costs:	0	
Additional Estimated Annual O&M:	0	0

Prior Funding History / Additional Information:
SLA01/CH61 - $138,000
SLA93/CH79 - $450,000

Detailed Project Justification:
In order to accomplish the Division of Oil and Gas' mission of maximizing responsible oil and gas development for the benefit of the state's citizens the division must acquire: (1) digital geophysical data (primarily 2-D and 3-D seismic data); (2) staff training to maintain proficiency to industry standards; (3) state-of-the-art interpretive hardware and software and (4) data processing and reprocessing services. These data, skills and capabilities are the tools used by the division to ascertain the hydrocarbon potential of state lands offered for lease and to determine the economic value of unit and participating area proposals submitted by industry.
Petroleum exploration and production companies acquire hundreds of line miles of 2-D seismic data and hundreds of square miles of 3-D seismic data each year as they explore for new prospects, re-survey previously explored areas, and monitor reservoir performance. Although the division has in place a permit procedure to acquire these data acquired on state land for only the cost of reproduction as they become available, there remains a substantial backlog of permit data not yet acquired by the agency due to funding limitations in recent years. That backlog was attacked during FY02 and this CIP is intended to continue that process.

In order to properly evaluate the hydrocarbon potential of state lands, data from adjacent federal and private lands must sometimes be acquired. The NPR-A and the OCS portion of the Beaufort Sea are such areas. Data in these areas are exempt from permit stipulations and must be purchased from the operator at market rate ($3,000 per line mile for 2-D data and $20,000 per square mile for 3-D data are typical prices).

Our continued conversion of older data to digital format on stable media is also a significant element of this CIP. The division holds a substantial quantity of older seismic data that are available only on paper or on potentially unstable tape media. Consequently, the value of these data is at risk. We have initiated a process whereby these data are converted to longer-lasting CD or DVD media compatible with our data processing capabilities. The cost of these conversions is about $6.00 per mile for the paper-to-digital transform and $25.00 per output unit for tape-to-tape or tape-to-disk transcriptions.

Continuing improvements of interpretive computer hardware and software and advances in seismic processing necessitate periodic upgrades of staff skills, equipment and the purchase of new software packages. As the division's storehouse of seismic information is increased (particularly with the advent of high-volume 3-D data) it has been necessary every few years to improve data storage capacity and computer processing speed.

Occasionally the division might experience the need for small problem-specific processing applications beyond its in-house capability. For example, analysis of certain attributes or characteristics of 3-D seismic data representing reservoir properties might be required to properly allocate reserves and production to lessor and lessees.

A non-technical, but important justification for this program is that the state is better prepared to avoid or prevail in matters of litigation related to oil and gas programs, negotiations and determinations. Without the technical expertise, capabilities and data provided by this CIP the division will be unable to properly represent the state in such matters.

Why the project is needed now:
The Division of Oil and Gas is responsible for ensuring that petroleum-derived revenues are maximized by responsible oil and gas exploration and development of state lands. To do so requires that the division's small staff attain and maintain database equivalency and technical competency comparable to its industry contemporaries. These are the fundamental state assets upon which Alaska's conventional oil and gas leasing, shallow gas leasing, exploration licensing, and development and production negotiations and decisions rest.

The distribution of proven and potential oil and gas reservoirs is not constrained by political boundaries and, as exploration and development now expand into areas of mixed ownership, the division must acquire exploration data from the adjacent lands if it is to perform its role properly – that is to protect the state's interests in those federally and privately owned areas from which the state shares revenue derived from oil and gas leasing, exploration and production. Although the division receives, at low cost, geophysical data acquired under permit from state lands, such data acquired from adjacent federal and private lands must be purchased in quantity at market price. Seismic data prices range from $3,000/mile (2-D) to $20,000/square mile (3-D). While we are optimistic that the DNR and the BLM will soon implement a Memorandum of Understanding whereby the division will gain limited access to the geophysical data upon which the apparent NPR-A drilling success is based, the division might have to purchase small amounts of supporting data . At the present time these data are not available to the division by other means.

Geophysical data are of little value unless the division staff is trained and is provided the technical support necessary to properly evaluate them in a manner comparable to that of industry. The industry continually improves its data acquisition, processing, and interpretation technologies and the division must incorporate interpretive software and hardware advances in its interactive interpretation and mapping programs to maintain reasonable compatibility. The evolution from 2-D seismic to 3-D and 4-D surveys has increased the volume of data tremendously. The memory capacity and speed of the division's computer network must be expanded periodically as the greater volumes of data are incorporated into the division's inventory. Over the last decade the industry's preferred digital media have evolved from 9-track half-inch tape to 8-mm. tape cartridges to floppy disks to CDs to DVDs and, now, to Digital Linear Tape. Each media advance requires a new generation of hardware and software to archive and to analyze the data properly. Technical advances such as these require recurrency training for division staff to properly utilize the system improvements and to maintain a knowledge base comparable with industry contemporaries. If the division's small technical staff is to properly represent the state's interests in a timely and professional manner it requires state-of-the-art knowledge and support. An estimated $40,000 will be required to make appropriate hardware and software improvements during FY03 and $18,000 will be required to train staff.

Among the division's extensive inventory of confidential exploration data is a substantial quantity of older data that is preserved now only in hard-copy format as deteriorating paper and Mylar prints. These older data must be converted to digital format by tape transcription or optical scanning methods if they are to be preserved and retained in the division's interactive computer interpretation database. Otherwise their value will be lost. The division has not the staff, hardware or software to accomplish these tasks and, under the FY02 Seismic CIP, initiated a program to recover and preserve these older data over a period of several years. Continued funding will allow the division to contract with vendors that specialize in tape transcription and optical scanning of seismic data until the data backlog is eliminated and all older data are transformed to digital format. This project is expected to continue over a period of several years as the critical data sets are identified and submitted for transformation.

This project will allow the division to:

1. Purchase seismic data from private and federal lands;
2. Upgrade computer equipment as necessary and appropriate;
3. Attain recurrency training to maintain staff proficiency;
4. Contract with a vendor(s) to convert analog data into digital format.

Project History:
There have been several seismic CIPs over the past 20 years, most (if not all) for five-year terms. They have been used to purchase geophysical data (primarily seismic data) acquired by industry on state, federal and private lands as well as to procure training, hardware and software needed to maintain adequate knowledge, skills and abilities by the division staff. Regulatory and program changes now allow the division to purchase data acquired on state lands for much lower cost and that portion of the program is now funded by the division's general operating budget. Although we are optimistic that the MOU whereby the division gains access to NPR-A geophysical data worth millions of dollars will be implemented, the ability to purchase data acquired on other federal lands and on private lands should be retained. As in the past, training needs must be met if division staff are to remain technically proficient. The ability to preserve older data by various format transformations so that the division can continue to use the derived information in its interpretive computer applications must also be retained or the value of those data will be lost.

Specific Spending Detail:

Data Acquisition/Reprocessing	$	67.0
Computer Upgrades & Software	$	30.0
Staff Training	$	18.0
Analog-to-Digital Transcriptions	$	40.0
Totals	$	155.0

Project Support:
This program is likely to be supported by virtually all agencies dependent upon oil and gas revenue, oil and gas producers and supporting industries and associations.

Project Opposition:
None anticipated.